

## Section 2-1: Observing the Solar System

Why could the Greeks tell the difference between stars and the planets?

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What 5 planets did the Greeks “Discover”?

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### I. Earth at the Center

A. Geocentric – Earth at the center of the revolving planets\_\_\_\_\_

B. Ptolomy (AD 140)

1. \_\_\_\_\_ Astronomer

2. Thought the planets move \_\_\_\_\_

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3. People believed this for \_\_\_\_\_ years

### II. Sun at the Center

A. Heliocentric - \_\_\_\_\_

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B. Copernicus (1500s)

1. Thought up the idea that the sun is at the center of the solar system, but  
could not prove it

C. Galileo (1600s)

1. Lived in \_\_\_\_\_

2. Used his telescope to make 2 observations that supported the heliocentric  
model

a. Saw that Jupiter\_\_\_\_\_

i. Showed that not everything in the sky revolved around Earth

b. Saw that Venus \_\_\_\_\_

i. Could not be explained if Earth was at the center of the solar  
system

### III. Orbits

A. Tycho Brahe (1500s)

1. Observed the positions of planets for almost \_\_\_\_\_ years
2. Could not explain planet orbits

B. Johannes Kepler (1600s)

1. a German \_\_\_\_\_
2. analyzed the data collected by \_\_\_\_\_
3. discovered that the orbit of each planet is an \_\_\_\_\_

IV. Inertia and Gravity

A. Kepler discovered the correct shape of orbits but couldn't explain why

B. Issac Newton

1. English Scientist
2. Newton concluded that \_\_\_\_\_  
\_\_\_\_\_

a. Inertia - \_\_\_\_\_  
\_\_\_\_\_

b. Gravity – attractive forces between two objects

3. The \_\_\_\_\_ are in orbit around the \_\_\_\_\_ because the sun's \_\_\_\_\_ pulls on them while their \_\_\_\_\_ keeps them moving ahead. Therefore, the planets keep moving around the sun and end up in orbit.

Sec. 2-1 Review (p. 55):

1. How is Copernicus's description of the system of planets different from Ptolomy's?
2. How did Galileo's observations of Jupiter's moons help to show that the geocentric explanation is incorrect?
3. What shape are the orbits of the planets? How was the discovery of this orbit shape made?
4. What 2 factors act together to keep the planets in orbit around the sun?

